

# MARKETING EGGS ON A GRADED BASIS IN OHIO



**OHIO AGRICUTURAL EXPERIMENT STATION  
WOOSTER, OHIO**

## C O N T E N T S

	Page
I. Purpose and Organization of the Study .....	3
II. Producer Acceptance of Practice of Selling Eggs on Graded Basis .....	3
(a) Volume of Eggs Graded and Inspected under Federal- State Supervision .....	4
(b) Continuity of selling eggs on a graded basis by producers .....	6
(c) Return of producers to practice of selling eggs on a graded basis .....	7
III. Factors Related to Producers Ceasing to Sell Eggs on a Graded Basis .....	9
(a) Reasons given by producers for ceasing to sell eggs on a graded basis .....	9
(b) Market channels selected by producers that changed to selling eggs on a non-grade basis .....	11
(c) Size of flocks of producers that changed to selling eggs on a non-grade basis .....	11
(d) Management practices followed by producers changing back to selling eggs on a non-grade basis .....	12
(e) Producers' reactions to selling eggs on a graded basis .....	13
IV. Relation of the Practice of Producers Selling Eggs on a Graded Basis to Changes in the Industry .....	14
(a) Relation of practice of selling eggs on a graded basis to size of flock .....	15
(b) Relation of length of experience in selling eggs on graded basis to quality of eggs sold .....	17
(c) Relation of length of experience in selling eggs on graded basis to size of eggs sold .....	19
(d) Relation of length of experience in selling eggs on graded basis to color of eggs sold .....	20
(e) Trend of change in marketing channels to which buying stations market graded eggs .....	21
V. Summary .....	23
VI. Bibliography .....	27

# RESPONSE OF PRODUCERS TO THE PRACTICE OF MARKETING EGGS ON A GRADED BASIS IN OHIO\*

DWIGHT P. MILLER, RAYMOND E. CRAY, and E. L. DAKAN

Department of Poultry Science

During 1948, Ohio produced 216,583,000 dozen eggs returning a gross cash income of \$102,502,000 to producers, according to estimates made by the Bureau of Agricultural Economics, U. S. Department of Agriculture.

Poultry and its products accounted for 12.7 percent of the gross cash agricultural income of the state and ranked next to the dairy and hog enterprises as a source of cash income to Ohio farmers during 1947.

In 1932, Ohio adopted the U. S. Standards as the official grades for Federal-State graded eggs. The volume of eggs graded under Federal-State supervision since that authorization in 1932, increased rapidly through the years until in 1948 the total had reached a volume equal to one-fifth of all the eggs sold from Ohio farms during that year.

## PURPOSE AND ORGANIZATION OF THE STUDY

This study was made to show the growth in the volume of eggs graded under Federal-State supervision in Ohio and to determine the reaction of producers to the practice of selling eggs on a graded basis.<sup>1</sup> In addition, the study was conducted to determine what, if any, changes in production and marketing methods have resulted from the adoption of the Federal-State grades and the development of the practice of selling eggs on a graded basis by producers.

This study includes records on the volume of eggs sold by nine large egg marketing agencies in Ohio using the Federal-State grading service and by one marketing agency not using official grades.

This study also includes an analysis of a survey that was made of 249 Richland County producers that discontinued marketing eggs on a graded basis to determine the reasons for changing their system of marketing.

## PRODUCER ACCEPTANCE OF PRACTICE OF MARKETING EGGS ON A GRADED BASIS

The volume of eggs marketed on a graded basis in Ohio has increased every year since the Federal-State Inspection Service was adopted in 1932 with the exception of 1945.

\*"Contribution from Ohio Agricultural Experiment Station as a collaborator under North Central Region Agricultural Experiment Station cooperative research project entitled, 'To Ascertain Channels, Costs, and Margins of Marketing Eggs Under Different Methods in the State of Ohio.'"

<sup>1</sup>The term "on a graded basis" is used throughout this report to mean "graded according to the official federal-state standards for shell eggs as certified by the Federal State Dairy and Poultry Products Grading Inspection Service."

### Volume of eggs graded and inspected under Federal-State supervision

During 1933, the first full year of the operation of the Federal-State Egg Grading Service in Ohio, a total of 58,886 cases of eggs were graded under supervision. The number of eggs graded under supervision has shown a steady growth since that time, reaching a peak volume of 1,462,618 cases, or 23 percent of the total volume of all eggs sold from Ohio farms in 1948.

**TABLE 1.—The number of marketing agencies operating under Federal-State Grade supervision in Ohio by years since the adoption of the program in 1932; the volume of eggs graded and inspected by years and its relation to the total volume of all eggs sold from Ohio farms.**

Year	Volume of all eggs sold from Ohio farms*	Volume of eggs graded and inspected by marketing agencies, operating under Federal-State Grade Supervision in Ohio		
		Number of Marketing Agencies contracting for Service	Volume of Eggs Graded and inspected** (cases)	Percent of Volume of all Eggs sold from Ohio farms
	(000 cases)			
1931	4,986	0	0	0.0%
1932	4,826	1	14,000	0.3
1933	4,636	9	58,886	1.3
1934	4,619	16	120,455	2.6
1935	4,794	17	143,138	3.0
1936	4,781	14	172,714	3.6
1937	5,081	19	259,285	5.1
1938	4,717	18	324,952	6.9
1939	5,056	20	357,850	7.1
1940	5,175	23	443,636	8.6
1941	5,586	24	580,890	10.4
1942	6,078	27	749,263	12.3
1943	6,261	25	778,466	12.4
1944	6,608	27	982,769	14.9
1945	6,219	27	772,906	12.4
1946	6,186	28	1,135,142	18.4
1947	6,131	27	1,229,748	20.1
1948	6,319	27	1,462,618	23.1

\*Bureau of Agricultural Economics.

\*\*Federal-State Dairy and Poultry Grading and Inspection Service.

This growth in volume of eggs graded under Federal-State supervision from 1933 to 1948 amounted to an increase of 2087 percent over the 15-year period.

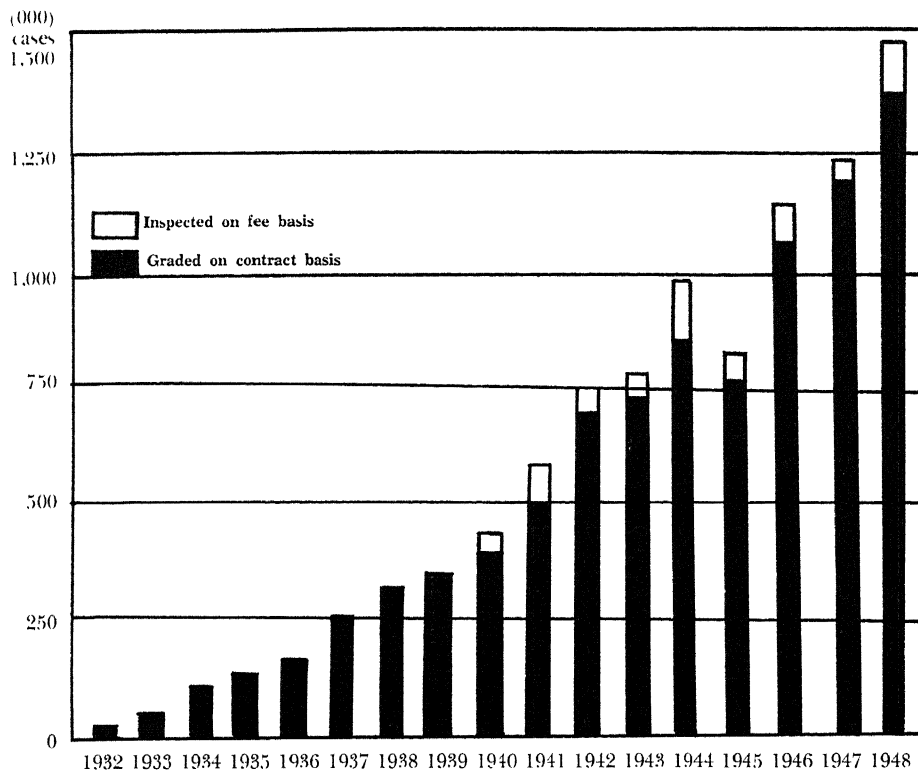


CHART 1.—Volume of eggs graded and inspected by Ohio Federal-State Grading and Inspection Service, 1932-1948.

Approximately one-half of all the eggs graded and inspected under Federal-State supervision in Ohio during 1948 were purchased on a graded basis direct from producers, and over 75 percent of the eggs bought on an official graded basis direct from producers were purchased by seven grading stations in the state.

Records of these seven egg grading stations were analyzed to get some measure of the percent of the total farm sale of eggs that were sold on a graded basis by producers in 1947 in the various sections of the state.

In the areas of the state served by these seven grading stations, the volume of eggs sold on a graded basis by producers ranged from 6 percent of the total volume of eggs sold in one area to 27 percent of all the eggs sold by producers in another area.

There was one county in which more than 53 percent of the total volume of farm sales of eggs were sold on a graded basis during 1947.

### Continuity of selling eggs on a graded basis by producers

The length of time that producers continue to sell eggs to one marketing agency following a certain system of marketing should be a fair indication of whether or not the system of marketing and the relationship with the marketing agency is satisfactory to the producer. Five of the seven egg grading stations studied had records of the weekly egg sales of each producer for several years.

An average of 59.5 percent of the producers selling eggs to these five grading stations discontinued using the outlet within a period of the first six years of operation of the grading stations. The number of producers that discontinued selling eggs to the individual grading stations during the first six-year period of operation varied from 30.1 percent to 78.5 percent of all the producers using the grading station during the first year.

TABLE 2.—Continuity of sale of eggs by producers to five grading stations during first six years of operation.

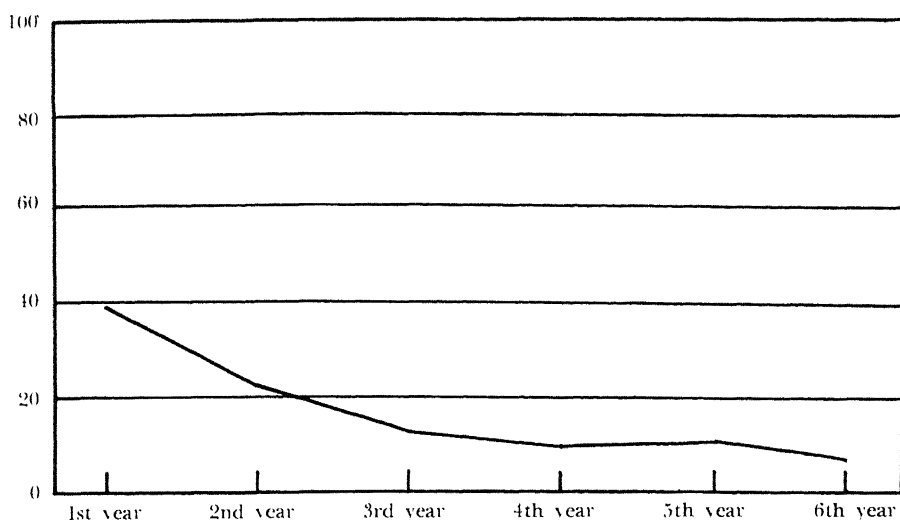
Grading Station	Number of producers selling eggs to grading during first year of operation	Number of producers ceasing to sell eggs to grading stations for a year or more during first 6 years of operation.							Percent of all producers that ceased selling eggs for a year or more during first six years of operation
		1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.	6th yr.	Total	
C	146	58	6	5	10	2	6	87	59.6%
D	236	19	9	15	7	13	8	71	30.1
E	330	16	63	33	28	12	10	162	49.1
F	318	74	32	22	19	14	16	177	55.7
G	613	218	109	46	29	59	20	481	78.4
Total	1643	385	219	121	93	100	60	978	59.5%

Percent of total number of producers that stopped

39.4% 22.4% 12.4% 9.5% 10.2% 6.1% 100%

Out of a total of 1,643 producers that started selling eggs on a graded basis during the first year of operation of the five grading stations, a total of 978 producers ceased selling eggs to the grading stations during the first six years of operation.

An average of 39.4 percent of the producers that ceased selling eggs on a graded basis, stopped during the first year, 22.4 percent the second year, 12.4 percent the third year, 9.5 percent the fourth year, 10.2 percent the fifth year and 6.1 percent during the sixth year.



GRAPH 2.—The average percent of producers that ceased selling eggs to five grading stations during each of the first six years of operation.

Since over 60 percent of the producers that ceased selling eggs on a graded basis stopped during the first two years of operation, it would seem apparent that educational work with producers on quality egg production is most important during that period. However, the number of producers that discontinued using the service in succeeding years indicates the desirability of a continuous program of education on quality production and management of eggs.

Only one marketing agency that bought eggs on a "case count" or "non-graded" basis was found with complete records on the producers from which they purchased eggs during the three-year period of 1945-47.

During this three year period, 39 percent of the active producers ceased to sell their eggs to this marketing agency buying eggs on a "non-graded" or "case count" basis while the graded egg buying stations lost an average of 44.1 percent of the producers during the first three years of operation and only 15.1 percent during the next three year period.

Data was not obtained from enough buying stations operating on a "non-graded" basis to indicate the comparative effect of the method of buying on the turn-over in producers using the agencies but the data does indicate that the problem is serious with both types of operation.

#### **Return of producers to practice of selling eggs on a graded basis**

An analysis of 2,303 producers that ceased selling eggs on a graded basis to the five grading stations in the study, shows that 283 or 12.3 per-

**TABLE 3.—Continuity of sale of eggs by producers to grading stations during first and second 3 year periods of operation.**

Grading Station	Number of producers selling eggs to grading stations during first year of operation	Number of producers ceasing to sell eggs to grading stations for a year or more					
		During 1st 3 yrs. of operation		During 2nd 3 yrs. of operation		During 1st 6 yrs. of operation	
		Number of producers	Percent of producers starting	Number of producers	Percent of producers starting	Number of producers	Percent of producers starting
C	146	69	47.3%	18	12.3%	87	59.6%
D	236	43	18.2	28	11.9	71	30.1
E	330	112	33.9	50	15.2	162	49.1
F	318	128	40.3	49	15.4	177	55.7
G	613	373	60.8	108	17.6	481	78.4
Total	1643	725	44.1%	253	15.4%	978	59.5%

cent of the producers started selling on a graded basis again during the five year period following the year in which they ceased selling on a graded basis.

In analyzing the number of producers that returned to the practice of selling on a graded basis in each of the five years after they had dis-

**TABLE 4.—Analysis of 2303 producers that ceased selling eggs on a graded basis, to determine how many started selling eggs on a graded basis again during each of the first 5 years after they changed back to selling on a non-grade basis.**

Grading Station	Producers that ceased selling eggs on a graded basis		Producers that started selling on a graded basis again during first 5 years after stopping		Percent of producers that started to sell on a graded basis again during each of first 5 years				
	Year	Number	after stopping		1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.
			Number	Percent					
C	1934	146	43	29.5%	58.1%	18.6%	11.6%	7.0%	4.7%
	1938	40	7	17.5	42.9	57.1			
D	1938	236	18	7.6	38.9	38.9	16.7	5.5	
	1939	172	22	12.8	27.3	36.4	18.2	9.1	9.1
	1940	250	26	10.4	42.3	30.8	15.4	7.7	3.8
	1941	219	26	11.9	53.8	26.9	11.5	7.7	
E	1939	179	33	17.4	33.3	18.2	21.2	18.2	9.1
F	1941	318	12	3.8	58.3	33.3	8.3		
	1942	130	9	9.2	55.6	33.3	1.1		
G	1941	613	87	14.2	57.5	23.0	13.8	5.7	
Total		2303	283	12.3%	49.1%	26.5%	14.1%	7.4%	2.8%



continued selling on a graded basis, it was found that 49.1 percent of the producers made the change during the first year, 26.5 percent the second year, 14.1 percent the third year and the remaining 10 percent during the fourth and fifth years.

#### FACTORS RELATED TO PRODUCERS CEASING TO SELL EGGS ON A GRADED BASIS

A total of 609 producers in Richland County had sold eggs on a graded basis to one of the two grading stations serving that county since 1932; however, 47.6 percent or 290 of these producers had ceased selling eggs on a graded basis prior to May 1948.

A survey was made of 249 of these 290 producers in Richland County that had ceased selling eggs on a graded basis to determine the reason for the producers changing their system of marketing eggs.

#### Reasons given by producers for ceasing to sell eggs on a graded basis

Approximately 56 percent of the 249 producers who had discontinued selling eggs on a graded basis were out of the poultry business at the time of this survey in May 1948.

TABLE 5.—The number of Richland County producers that sold eggs on a graded basis to one of two grading stations serving the county beginning July 1932 and the number of producers that ceased selling eggs on a graded basis prior to May 1948.

	Grading Station		Total
	B	G	
Producers that sold eggs on an official graded basis some- time between July, 1932 and May, 1948 (Number)	88	521	609
Producers that ceased selling eggs on graded basis prior to May, 1948 (Number)	64	226	290
Percent of all producers that ceased selling eggs on graded basis	73.3%	43.3%	47.6%
Producers interviewed that had ceased selling eggs on a graded basis (Number)	58	191	249
Producers that ceased selling eggs on graded basis because of going out of business (Number)	43	96	139
Percent of producers that ceased selling eggs on graded basis because of going out of business	74.1%	50.4%	55.8%
Producers that ceased selling eggs on graded basis because of too few layers—no eggs to sell (Number)	3	17	20
Percent of producers that ceased selling eggs on graded basis, because of too few layers—no eggs to sell	5.2%	8.9%	8.0%
Producers that ceased selling eggs on graded basis and sold through other channels (Number)	12	78	90
Percent of producers that ceased selling eggs on graded basis and sold through other channels	20.7%	40.8%	36.1%

Another 8.9 percent of the producers had reduced their flocks to a few layers and had no eggs to sell. This indicates that almost two-thirds of the producers who discontinued selling their eggs on a graded basis either went out of the poultry business or kept so few chickens that they had no eggs to sell.

Ninety producers or 27.6 percent of the 149 producers interviewed were selling on a "non-graded" or "case-count" basis at the time of the survey. Several different reasons were given by these 90 producers for changing their method of selling eggs.

**TABLE 6.—Analysis of reasons given by 90 Richland County producers for changing from selling eggs on a graded basis to selling eggs on a non-grade basis.**

Reason for changing from selling eggs on graded basis to selling on non-grade basis	Producers making change	
	Number	Percent
1. Too few eggs for truck to stop	28	31.1%
2. Getting a better price for eggs elsewhere	24	26.7
3. Dissatisfaction with the service of the marketing agency	14	15.6
4. Too many charges	4	4.4
5. Truck failed to stop for eggs	3	3.3
6. Personal obligations and new buyers	4	4.4
7. No clear-cut reason given	13	14.4
Total	90	100.0%

The 24 producers that ceased selling on a graded basis because they could get a better price selling on a non-graded basis averaged 46.5 cents per dozen for their eggs during May 1948 when this survey was conducted. During the same month the average weighted net price paid to all producers by the two agencies buying eggs on the basis of State-Federal grades was 44.15c per dozen.

**TABLE 7.—Analysis of price received per dozen for eggs during May, 1948 by 24 Richland County producers that changed from Marketing on a graded basis to a non-graded basis because of receiving a better price.**

Present Market Outlet	Number of Producers	Range in price received (cts. per doz.)	Average price received (cts. per doz.)
Direct to consumers	9	41-55 cts.	49 cts.
Truckers at Farm	9	42-45	43
Grocers and other retail stores	4	37-47	43
Hatcheries	2	58	58
Average	24	37-58	46.5

The group of producers that sold eggs direct to consumers which involved extra work and expense and the group that sold to hatcheries which involved the cost of maintaining males and closer selection of eggs were the only groups that averaged more for their eggs than the average weighted net price paid all producers by the two grading stations.

**Market Channels selected by producers that changed to selling on a non-grade basis**

Seventy-two percent of the 90 producers that ceased selling eggs on a graded basis and returned to selling on a non-grade basis developed outlets either direct to consumers or to stores selling direct to consumers.

**TABLE 8.—Types of market outlets to which 90 Richland County producers sold eggs before and after selling eggs on a graded basis.**

Type of market outlet to which eggs were sold	Before selling eggs on a graded basis		After ceasing to sell eggs on a graded basis	
	Number	Percent	Number	Percent
Trucker	30	33.3%	23	25.6%
Grocery (Mansfield, Shelby)	25	27.8	22	24.4
Direct to consumers	13	14.4	31	34.4
Retail Poultry Store	8	8.9	3	3.3
Dairy & Delicatessen Stores	7	7.8	9	10.0
Hatchery	7	7.8	2	2.2
Total	90	100.0%	90	100.0%

Twenty-six percent of the producers returned to the practice of selling eggs to truckers. Some of these producers had large flocks and were induced to make the change by the trucker absorbing a part of the grading and marketing charge made by the buying station.

**Size of the flocks of producers that changed to selling eggs on a non-grade basis**

The 90 producers that ceased selling their eggs on a graded basis and returned to selling on a non-grade basis had larger flocks on the average than the producers selling eggs on a graded basis at the time of the survey. However, the average size of the flocks ceasing to sell on a graded basis was distorted because it included one flock of 5,000 layers.

Sixty-five percent of the 90 producers that changed from selling eggs on a graded basis to selling on a non-grade basis had 100 or fewer layers at the time of the survey.

**TABLE 9.—Size of flocks of 90 Richland County producers that changed from selling eggs on a graded basis to selling on a non-grade basis compared to size of all flocks selling to grading stations in 1947.**

Groups of Producers	Producers selling to each grading station		Producers selling eggs to one of the two grading stations	
	B	G		
	No. of flocks	Ave. size of flocks	No. of flocks	Ave. size of flocks
Richland County producers selling to grading stations in 1947.	21	200	295	100
Richland County producers that ceased to sell eggs on graded basis and sold on non-grade basis again	13	625	77	104
			90	181

Only 11.1 percent of the producers that changed to selling eggs on a non-graded basis had flocks of over 200 layers at the time of the survey.

**TABLE 10.—Analysis of size of flocks of the 90 producers that ceased selling eggs on graded basis and changed to selling on a non-grade basis.**

Size of flock	Producers	
	Number	Percent
100 layers or less	59	65.6%
101-200	21	23.3
201-300	4	4.4
301-400	1	1.1
401-500	2	2.2
501-1500	2	2.2
5000 and over	1	1.1
Average size flock		
181	90	100.0%

#### Management practices followed by 90 producers that changed from selling eggs on a graded basis to selling on a non-graded basis

An analysis of the "quality egg production" management practices followed by 90 Richland County producers prior to selling on a graded basis, during the period of selling on a graded basis and while selling on a "non-grade" basis again, shows clearly that practically all the im-

TABLE 11.—“Quality Eggs Production” management practices followed by 90 Richland County producers prior to selling eggs on graded basis, while selling on graded basis, and while selling on non-graded basis again.

“Quality Egg Production” management practices followed	Percentage of 90 flocks following Management practices		
	Before selling eggs on graded basis	While selling eggs on graded basis	After changing back to selling on non-graded basis again
Special care in cooling eggs	55%	85%	61%
Moisture provided in egg room	39	56	44
Layers confined to house continuously	27	34	34
Layers confined part of day	19	33	14
Layers confined during winter only	5	5	5
Layers not confined	49	27	47
Eggs graded for size	33	93	34

provements made in management during the period of selling on a graded basis were stopped when the producers returned to selling eggs on a non-graded basis again.

Eighty-five percent of these producers gave special care to cooling the eggs when they sold them on graded basis, but only 61 percent continued to cool them when they sold eggs on a non-graded basis.

Likewise, the percent of producers providing moisture in the egg holding room and grading eggs for size, was materially lower when the producer ceased selling eggs on a graded basis and returned to selling on a non-graded basis.

#### Producers' reactions to selling eggs on a graded basis

Of the 90 producers in Richland County that changed to selling eggs on a non-grade basis, 44 or approximately one-half of the producers approved of the practice of selling eggs on a graded basis.

Only twenty-four of the 90 producers that changed to selling eggs on a non-grade basis made the change because of dissatisfaction with the grading. Several different reasons were given by producers as the cause of their dissatisfaction with the grading, “too many checked eggs” and “too many grades” being most common reasons.

**TABLE 12.**—Analysis of reasons given for dissatisfaction with the grading by the 24 producers that ceased to sell eggs to the two grading stations in Richland County because of dissatisfaction with the grading.

Reasons given for dissatisfaction with grading	Producers giving the reason	
	Number	Percent
Too many checked eggs	6	25.0
Too many grades	5	20.8
Not equipped to properly care for quality eggs	4	16.6
Too much variation in grades	3	12.5
Too many costs in grading	3	12.5
Too many culls (Eggs) not paid for	3	12.5
Total	24 producers	100.0%

**TABLE 13.**—Analysis of the size of the flocks of the 24 producers that ceased to sell to the two grading stations in Richland County because of dissatisfaction with the grading.

Size of flock	Producers	
	Number	Percent
100 or less	11	45.8%
101 to 200	7	29.2
201 to 300	1	4.2
401 to 500	2	8.3
601 to 700	1	4.2
901 to 1000	1	4.2
5000 or over	1	4.2
Total	24	100.0%

The size of the flocks of the 24 producers varied from the smallest to the largest size flocks that sold eggs on a graded basis with 75 percent of the producers having flocks of less than 200 layers.

#### RELATION OF THE PRACTICE OF SELLING EGGS ON A GRADED BASIS TO CHANGES IN THE INDUSTRY

Selling eggs on a graded basis makes producers conscious of the factors which influence the size and production of quality eggs as well as the factors which have a bearing on the rate of deterioration of the quality in eggs because of the direct correlation of egg size and quality to the price received for eggs when sold on a graded basis.

It is of interest, therefore, to determine the relationship which exists between the development of the practice of selling eggs on a graded basis and changes which have taken place in the poultry industry in Ohio.

**Relation of practice of producers selling eggs on a graded basis to size of flock**

The producers with larger flocks tend to be the first to sell their eggs on a graded basis because the size of the enterprise makes the changes in production practices necessary to produce quality eggs yield a larger total net return. Likewise, the producers with larger flocks are naturally more interested in poultry production and more receptive to changes and improvements.

A comparison of the number of eggs sold by 725 producers during the early years of operation of four grading stations showed an average volume of 106.5 cases of eggs per producers per year compared with an average yearly volume of 80.1 cases per producer per year of 370 producers selling eggs to the same grading stations for the first full year in 1946.

This means that the 725 producers that started selling eggs on a graded basis during the early years of the grading stations had an average yearly volume of 26.4 cases or 32.9 percent more eggs than the average yearly volume of the 370 producers that started selling eggs on a graded basis for the first time in 1946.

**TABLE 14.—Comparison of the average yearly volume of eggs sold on a graded basis per producer by (725) producers during the early years of operation of 4 grading stations with the average yearly volume of 370 new producers that sold eggs on a graded basis for the first time in 1946.**

Grading Station	Year	First producers that sold on graded basis		Producers selling on graded basis for first time in 1946		Difference in average yearly volume of eggs sold by first producers and those starting in 1946	
		Number of producers	Ave. yearly volume eggs sold per producer (cases)	Number of producers	Ave. yearly volume eggs sold per producer (cases)		
						Cases	Percent
D	1940	225	115.7	156	80.5	35.2	43.7%
E	1941	183	90.6	121	85.5	5.1	6.0
F	1943	142	125.2	55	84.5	40.7	48.2
G	1943	175	96.1	38	56.5	39.6	70.1
Total or ave.		725	106.5	370	80.1	26.4	32.9%

The average yearly volume of eggs sold on a graded basis by 290 producers to two grading stations in 1940 was compared with the average yearly volume of eggs sold by the same producers in 1944 and 1947. The average yearly volume sold in 1944 was 21.3 percent larger than the volume sold in 1940, and the volume sold in 1947 was 18.3 percent larger than in 1940.

Data available from the census shows that the average yearly volume of eggs sold per producer in the area served by these two grading stations was 20.8 cases in 1940 and 27.6 cases in 1944. This shows that the increase in yearly volume of sales for all producers in the area was 32.7 percent from 1940 to 1944 and only 21.3 percent for the producers selling on a graded basis; however, because the group sold a much higher average volume of eggs the percent increase does not give the complete picture.

The actual increase in average yearly volume of eggs sold by the producers selling eggs on a graded basis from 1940 to 1944 was 25.4

**TABLE 15.**—Comparison of the average annual volume of eggs sold on a graded basis by the same 290 producers during 1940, 1944 and 1946; and a comparison of the increase in volume of eggs sold by these producers with the average increase in volume of eggs sold by all producers in the area served by the two grading stations and the average volume of eggs sold by all producers in the state.

Grading Station	Average yearly volume of eggs sold on a graded basis				Increase in Volume of Eggs sold by same producers			
	Number of Producers	1940	1944	1947	1940 to 1944		1940 to 1947	
		(cases)	(cases)	(cases)	Cases	Percent	Cases	Percent
D	135	129.2	161.1	166.7	31.9	24.7 <sup>0</sup> / <sub>100</sub>	37.5	29.2 <sup>0</sup> / <sub>100</sub>
E	155	109.3	128.1	115.4	31.9	24.7 <sup>0</sup> / <sub>100</sub>	37.5	29.2 <sup>0</sup> / <sub>100</sub>
					18.8	17.2 <sup>0</sup> / <sub>100</sub>	6.1	5.5 <sup>0</sup> / <sub>100</sub>
Total or Ave.	290	119.2	144.6	141.0	25.4	21.3 <sup>0</sup> / <sub>100</sub>	22.8	18.3 <sup>0</sup> / <sub>100</sub>
Average yearly volume of sales for all producers in area served by the two grading stations (Bureau of Census)		20.8	27.6		6.8	32.7 <sup>0</sup> / <sub>100</sub>		
Estimates of Total Increase in Egg Production in Ohio (Bureau of Agr. Economics)						27.7 <sup>0</sup> / <sub>100</sub>		18.5 <sup>0</sup> / <sub>100</sub>



cases per year, while the average increase in annual volume of eggs sold by all producers in the area was only 6.8 cases per year during the same period.

Estimates of the total increase in egg production in Ohio, based on data of the Bureau of Agricultural Economics, indicate that the percent increase in production from 1940 to 1947 for the state as a whole was practically the same as for the 290 producers selling on a graded basis to the two graded buying stations. However, here again, the actual increase in average annual volume of eggs sold by the producers selling on a graded basis was undoubtedly much larger than the increase in the average annual sale of eggs by all the producers in the state.

**Relation of length of experience in selling eggs on a graded basis to quality of eggs sold**

The average quality of the eggs sold to three grading stations during the third week in January 1948 by 161 producers that started to sell eggs on a graded basis 7 to 13 years previously contained 4.4 percent more AA and A grade eggs and 4.7 percent less B grade eggs than the eggs sold by 84 producers that started to sell eggs on a graded basis for the first time two years previously.

While this data indicates that the producers with longer experience in selling eggs on a graded basis had eggs of a little better quality, the length of time during which the quality of the eggs sold by both groups was compared was too short to be conclusive.

**TABLE 16.—The quality of eggs sold during the third week of January, 1948 by 161 producers that had sold eggs on a graded basis for 7 to 13 years compared with quality of eggs sold by 84 producers that had sold eggs on graded basis for about 2 years.**

Grading Station	Year producers started selling eggs on a graded basis	Years producers sold eggs on graded basis	Number of producers	Percent of AA & A grade eggs	Percent of Grade B, checks and misc. grade	Percent of Grade C eggs
G	1935	13	36	86.2%	12.9%	0.9%
	1945	2	39	80.0	18.9	1.1
E	1939	9	76	91.7%	7.2%	1.1%
	1945	2	28	88.8	1.2	.1
F	1941	7	49	87.8%	8.9%	3.3%
	1945	2	17	85.7	11.1	3.2
Average		9.3	161	89.0%	9.3%	1.8%
		2.0	84	84.6	14.0	1.4
Difference				4.4%	-4.7	0.4%

The problems involved in producing quality eggs are not so complicated that they usually require producers two years to learn to master them, and consequently no significant difference in quality of eggs should be expected in comparing the quality of eggs sold by producers with two years' experience with the quality of eggs sold by producers with 7 to 13 years' experience; however, over a period of years producers may acquire better equipment and facilities for holding eggs.

In order to get an appraisal of the improvement made in quality of eggs produced during the first few months of experience in selling eggs on a graded basis, the quality of eggs sold by 17 producers to grading station (F) was studied for 10 different weeks over a period of 27 months in comparison to the average grade of all eggs bought by the grading station during the same weeks.

TABLE 17.—A comparison of the quality of eggs sold by 17 producers, based on the percent of AA and A grade eggs sold during each of the ten weeks scattered over the first 27 months that they sold eggs on a graded basis, compared to the average quality of all the eggs bought by the grading station during the same weeks.

Weeks that quality of eggs was compared	Producers that started to sell eggs on graded basis between May 1 and Aug. 1, 1946		All producers selling eggs to grading station includes new producers starting to sell eggs on graded basis during experiment		Difference in percent of AA & A grade eggs sold by 17 selected producers and all producers	
	Number of producers	Percent AA and A Grade eggs in all eggs sold	Total volume of eggs sold (cases)	Percent AA and A Grade eggs in all eggs sold (cases)	Weekly Test	Weighted ave. difference for year
Aug. 17, 1946	17	59.2%	715	75.9%	16.7	16.7%
Dec. 21, 1946	17	71.5	1,201	91.9	20.4	
Feb. 8, 1947	17	74.2	1,106	86.9	12.7	
May 17, 1947	17	86.9	1,243	83.6	16.7	
Aug. 16, 1947	17	78.8	794	75.1	-3.7	7.6%
Nov. 15, 1947	17	76.7	1,233	84.8	8.1	
Jan. 24, 1948	17	76.9	1,607	88.3	8.4	
May 8, 1948	17	72.9	1,237	84.6	11.7	
Aug. 7, 1948	17	84.5	766	83.0	-1.5	1.6%
Nov. 20, 1948	17	84.0	1,261	87.5	3.5	
Ave.		73.4%		85.2%	11.8%	

These 17 producers started selling eggs on a graded basis between May 1 and August 1, 1946. The average percent of AA and A grade eggs in all the eggs sold by these 17 producers was compared with the average percent of AA and A grade eggs bought by the grading station from all producers during the weeks of August 17 and December 21, 1946, also during the weeks of February 8 and May 17, 1947.

The eggs sold by the 17 inexperienced producers during these four weeks contained an average of 16.7 percent less AA and A grade eggs than the eggs sold by all the producers that sold to the grading stations during the same weeks. (The latter group included the 17 producers whose egg quality was studied and all new producers that started to sell eggs to the grading station during the year.)

During the second year the comparison was again made during four different weeks but the average difference in quality was much less—the experienced producers having 7.6 percent more AA and A grade eggs than the inexperienced producers.

During the two weeks that the quality of eggs sold by the two groups was studied in the first part of the third year, the group of experienced producers had only 1.6 percent more AA and A grade eggs than the group of less experienced producers.

This data indicates that producers make the biggest improvement in the quality of eggs sold during the first year of experience in selling eggs on a graded basis.

#### **Relation of the Length of Experience in Selling Eggs on a Graded Basis to Size of Eggs Sold.**

The eggs sold during the third week in January 1948, by 116 producers with 7 to 13 years of experience selling eggs on a graded basis, contained an average of 5.8 percent more large and jumbo eggs than the eggs sold during the same week by 84 producers with only about two years of experience in selling eggs on a graded basis. The producers with less experience in selling on a graded basis sold a correspondingly larger percentage of eggs that were of medium and small size. While this data indicates that the producer with longer experience selling eggs on a graded basis sold a larger percentage of large or jumbo eggs, the length of time during which the size of eggs sold by the two groups was compared was for too short a period of time to be conclusive.

It would seem logical that producers with more experience in selling eggs on a graded basis would appreciate the significance of the effect

TABLE 18.—Comparison of size of eggs sold during third week in January, 1948 by 161 producers that had sold eggs on graded basis for 7 to 13 years, with size of eggs sold by 84 producers that had sold eggs on graded basis about 2 years.

Grading Station	Year producers started selling eggs on a graded basis	Number of producers	Percent of all eggs in each size classification			
			Jumbo & Large	Medium	Small	Not Sized
C	1935	36	82.6%	15.8%	1.5%	
	1945	39	67.9	24.8	2.5	1.8
E	1939	76	81.1	14.6	1.3	3.1
	1945	28	78.3	16.6	0.1	4.4
F	1941	49	80.8	13.3	0.4	5.5
	1945	17	82.5	12.2	0.4	1.9
Total	7-13 years	161	81.2	14.4	1.1	3.3
	2 years	84	75.3	18.7	1.4	4.7
Difference	7-13 years	161	5.9	-4.3	-0.3	-1.4
	2 years	84				

of size on the price received for eggs, and consequently, would make a greater effort to secure chicks that were bred to produce large size eggs.

#### Rotation of the length of experience in selling eggs on a graded basis to the color of eggs sold

The color of eggs sold to the three grading stations during the third week in January 1948 by 161 producers that started to sell eggs on a graded basis 7 to 13 years previously, were divided by flocks into three groups: white egg flocks, brown egg flocks, and mixed flocks producing both brown and white eggs. The percent of the 161 flocks that fell into the different egg color classifications was compared with the breakdown in the distribution of flocks according to egg shell color of the 84 flocks that had been selling eggs on a graded basis only about two years.

About 61 percent of the producers with more experience in selling eggs on a graded basis were producing white eggs as compared with a little less than 40 percent of the flocks with only about two years experience selling on a graded basis. The group of producers with more experience in selling eggs on a graded basis included about 25 percent flocks that produced brown eggs, while the group of flocks with less experience included about 43 percent flocks that produced brown eggs.

**TABLE 19.**—Comparison of percentage of flocks that sold different color eggs during third week in January, 1948 by 161 producers that had sold eggs on graded basis for 7 to 13 years with 84 producers that had sold eggs on graded basis about 2 years.

Grading Station	Year producers started selling eggs on a graded basis	Number of producers	Percent of flocks selling different color eggs		
			White	Brown	Mixed color
C	1935	36	58.3%	30.6%	11.1%
	1945	39	4.10	43.6	15.4
E	1939	76	69.7	30.1	9.2
	1945	28	16.4	53.6	
F	1941	49	49.0	24.5	26.5
	1945	17	23.5	23.5	53.0
Total	7-13 years	161	60.9	24.2	14.9
	2 years	84	39.6	42.8	17.9

It would seem apparent that most of the first producers that became interested in selling eggs on quality basis had white egg-producing breeds. Other data indicates that there has been a growing popularity in the use of brown egg-producing breeds during the last 10 years in Ohio.

#### **Trend of change in marketing channels to which buying stations market graded eggs**

The percent of the total volume of eggs marketed to different types of marketing outlets by two grading stations; over a period of 10 years by one station and 5 years by the other, indicates a decreasing percentage of the volume of eggs are being marketed to wholesalers and jobbers, while an increasingly large percentage of the eggs tend to move directly to large retail organizations.

This trend for a larger percentage of the eggs marketed by grading stations to move from the grading station directly to retail organizations is probably due to the desire of retailers to handle better quality eggs and the combined efforts of the grading station and the retail organizations to reduce the costs of marketing.

TABLE 20.—Percent of total volume of eggs moving into different types of market outlets from two grading stations.

Grading Station	Year	Percent of Total Volume going to different types of market outlets			
		Wholesalers and jobbers	Chain Retail Stores	Independent Retail Stores	Direct to Consumers
D	1938	95%	4%	1%	0.2%
	1939	78	8	13	1
	1940	74	12	13	1
	1941	66	15	18	1
	1942	69	18	12	1
	1943	70	16	11	3
	1944	68	16	11	5
	1945	66	15	12	7
	1946	65	14	16	5
	1947	56	20	20	4
E	1944	76	13	11	
	1945	63	26	11	
	1946	76	14	10	
	1947	65	26	9	
	1948	54	42	4	

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SUMMARY

1. Poultry and its products accounted for 12.7 percent of the gross cash agricultural income in Ohio during 1947 and ranked next to the dairy and hog enterprises as a source of cash income to Ohio farmers.
2. The volume of eggs graded under Federal-State supervision in Ohio since authorization in 1932 increased rapidly through the years until in 1948 it was equal to more than one-fifth of all the eggs sold from Ohio farms.
3. During 1933, the first full year of the operation of Federal-State egg grading service in Ohio, a total of 58,886 cases of eggs were graded under supervision; in 1948 1,462,618 cases were graded and inspected under Federal-State supervision.
4. Approximately half of all the eggs graded and inspected under Federal-State supervision in Ohio during 1948 were purchased on a graded basis direct from producers and over 75 percent of these eggs were purchased by seven grading stations in the state.
5. In the areas served by these seven grading stations, the volume of eggs bought on a graded basis from producers ranged from six percent to 27 percent of the total volume of eggs sold by producers in the areas.
6. In one county more than 53 percent of the total volume of farm sales of eggs were sold on a graded basis to one grading station during 1947.
7. A study of five graded egg buying stations shows that 59.5 percent of the producers that sold eggs to the grading stations during the first year of operation of the stations discontinued selling on a graded basis during the first six years of operation. The range in percent of producers that discontinued selling eggs on a graded basis during the first six years was from 30.1 percent for grading station D to 78.5 percent for grading station G.

An average of 39.4 percent of all the producers that ceased selling their eggs on a graded basis, stopped during the first year, the second year 22.4 percent, the third year 12.4 percent, the 4th year 9.5 percent, the 5th year 10.2 percent and 6.1 percent during the 6th year.

Only one marketing agency that bought eggs on a "case count" or "non-graded" basis was found with complete records on the producers from which they purchased eggs during the three-year period, 1945-47. During this three-year period, 39 percent of the producers ceased to sell their eggs to this marketing agency.

A study of 2,303 producers that had ceased selling eggs on a graded basis to one of five grading stations shows that only 12.3 percent of the producers again returned to selling on a graded basis during the five years after they sold eggs on a "non-graded" basis. An average of 49.1 percent of the producers that changed back to selling on a graded basis did so during the first year, 26.5 percent the second year, 14.1 percent the third year and the remaining 10 percent during the fourth and fifth years.

8. A survey made of 249 of the 290 producers in Richland County that ceased selling eggs on a graded basis, shows that 55.8 percent of the group were out of the poultry business and another 8.9 percent of the producers had reduced their flocks so much that they had no eggs to sell.

Ninety producers, or 27.6 percent of the 249 interviewed, were again selling eggs on a "non-graded", or "case count" basis. An average of 31 percent of these producers didn't have enough eggs for the truck to stop; 26.7 percent were getting a better price for eggs elsewhere; 15.6 percent of the producers were dissatisfied with the service of the marketing agency; 14.4 percent had no clear-cut reason for making the change.

The 24 producers that ceased selling on a graded basis because they could get a better price selling on a "non-grade" basis received an average of 46.5c per dozen for their eggs during May 1948, while the weighted average price paid all producers selling to the two graded egg buying stations was 44.2c per dozen.

Only the producers selling eggs direct to consumers or to hatcheries actually received a better price than the average weighted price paid to all producers by the two graded egg buying stations during May 1948.

An average of 34.4 percent of the group of 90 producers that returned to selling on a "non-graded" basis again sold their eggs to consumers, 25.6 percent sold to truckers, 24.4 percent sold to grocery stores and 10 percent sold to dairy and delicatessen stores.

The average size of the flocks of the 90 producers returning to the practice of selling eggs on a "non-graded" basis was larger than



the average size of all the flocks selling eggs on a graded basis, but one flock in the group had over 5,000 birds which distorted the average size of the 90 flocks.

Almost 89 percent of the 90 flocks that returned to the practice of selling on a non-graded basis had flocks of less than 200 layers.

9. An analysis of the "quality egg production" management practices followed by the 90 Richland County producers prior to selling on a graded basis, during the period of selling on a graded basis and while selling on a non-graded basis again, shows clearly that practically all the improvements made in management during the period of selling on a graded basis were stopped when the producers returned to selling eggs on a "non-graded basis" again.

Forty-four, or approximately half of the producers that returned to selling on a non-graded basis actually approved of the practice of selling eggs on a graded basis. Only 24 of the 90 producers that changed back to selling on a non-graded basis, did so because of dissatisfaction with the grades. Eighteen of the 24 producers had flocks of less than 200 layers.

10. A study of the size of flocks selling eggs on a graded basis to four grading stations during the early years of operation shows that they had an average yearly volume of 106.5 cases of eggs comparing to an average yearly volume of 80.1 cases by producers selling eggs on a graded basis for the first time in 1946.

The average yearly volume of eggs sold on a graded basis by 290 producers to two grading stations in 1940 was compared with the volume of eggs sold by the same producers in 1944 and 1947. The average volume of eggs sold by the 290 producers in 1944 was 21.3 percent larger than the average volume sold by the same producers in 1940 and was 18.3 percent larger in 1947 than in 1940.

Census data shows that the average yearly volume of all producers in the area served by the two grading stations was increased 32.7 percent from 1940 to 1944; however, the producers selling on a graded basis increased their average volume from 119.2 cases to 144.6 cases, while the average volume of all producers only increased from 20.8 cases to 27.6 cases.

11. A comparison of the quality of eggs sold by 725 producers with 7 to 13 years of experience selling on a graded basis with 370 producers having only two years experience, shows very little difference.

The more experienced producers had an average of 1.1 percent more AA and A quality eggs.

A comparison of the average quality of eggs sold by 17 producers based on percent of AA and A grade eggs sold during each of 10 weeks scattered over the first 27 months that they sold eggs on a graded basis compared to the average quality of all eggs bought by the grading stations during the same weeks, shows that the experienced producers had 16.7 percent more A and AA quality eggs than the inexperienced producers during the first year's test. During the second year, the experienced producers had 7.6 percent more AA and A quality eggs, and during the first half of the third year, only 1.6 percent more AA and A quality eggs than the inexperienced producers.

A comparison of the average size of eggs sold during the third week in January 1948 by 725 producers that had sold eggs on a graded basis for 7 to 13 years with the average size of eggs sold by 370 inexperienced producers showed that the experienced producers had about 6 percent more large size eggs than the inexperienced producers.

A comparison of percentage of producers that sold different color eggs during the third week in January 1948 by producers that had sold eggs on a graded basis from 7 to 13 years with the color of eggs sold by producers that had sold eggs on a graded basis only two years shows that 61 percent of the more experienced producers had white egg producing flocks, while only 39.6 percent of the producers with less experience had white egg producing flocks. Data compiled elsewhere shows an increasingly large percent of the flocks selling eggs on a graded basis are producing brown eggs although they still represent substantially less than half of the eggs bought on a graded basis.

12. Records of two grading stations show a definite trend for an increasing percent of the volume of eggs to move directly to large retailers and a decreasing percent of the volume going to wholesalers.

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